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How Good Am I? Crude Self-Assessment vs. Examination

Hutchison, M. (2016). *How Good Am I? Crude Self-Assessment vs. Examination*. Poster session presented at CED Annual Conference, Belfast, United Kingdom. [http://pure.qub.ac.uk/portal/en/activities/ced-annual-conference\(03a24d3e-4128-4542-80dd-caa29d65e69a\).html](http://pure.qub.ac.uk/portal/en/activities/ced-annual-conference(03a24d3e-4128-4542-80dd-caa29d65e69a).html)

Document Version:

Publisher's PDF, also known as Version of record

Queen's University Belfast - Research Portal:

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How Good Am I? Crude Self-Assessment vs. Examination

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Introduction

The system has a number of fine-grained learning outcomes, grouped by topic. Students record their capability for each learning outcomes as one of four states:

- **Yes**, this is something I know I can do
- **No**, this is something I know I cannot do
- This is something I am not sure I understand (**Don't Know**)
- The is something I have **Learnt** as part of the module.

Students can update their record at anytime

The system also has links to online resources for each of the learning outcomes (part of module csc2025 shown in Figure 1).

Could these simple Yes/No self-evaluations be used to assess students ability?

Scoring

To answer the above question, the self-assessments were compared to the existing end-of-term examination by generating a mark for question 4 from the May 2016 examination.

Scoring the Self-Assessment

- Each exam question sub-part is mapped against fine-grained learning outcomes
- Learning outcomes weighted by corresponding question sub-part marks
- Student scores the learning outcome weight if they have recorded a positive statement (i.e. *Yes* or *Learnt*)

Scoring the Exam

- Exam consists of many short-answer questions
- Exam marked in traditional way
- Detailed marks recorded for each sub-part of each question

Results

The scores from the self-assessment and exam for each student were plotted on a scatterplot (Figure 4).

In addition, students' ratings for individual learning outcomes where they had recorded either *Yes* or *Learnt* were classed as either true positive (where they obtained marks in the actual exam) and false positive (where they obtained no marks in the exam), shown in Figure 3.

Discussion

Most students results fall below the diagonal, indicating that their self-assessment scored higher than their exam performance and thus the self assessment cannot be solely relied upon. Perhaps with some guidance their score could become more valid.

One problem is the crude scoring of the self-assessments (all marks or no marks) leads to an over-optimistic score where a student gives a positive answer for a learning outcome.

Looking at the top and bottom ends of the class separately shows some differences (Figures 5 and 6). Students in the bottom quartile demonstrate a wider range of self-assessment scores, compared to the top quartile compared to the top quartile, possibly evidence of the Dunning-Kruger effect.

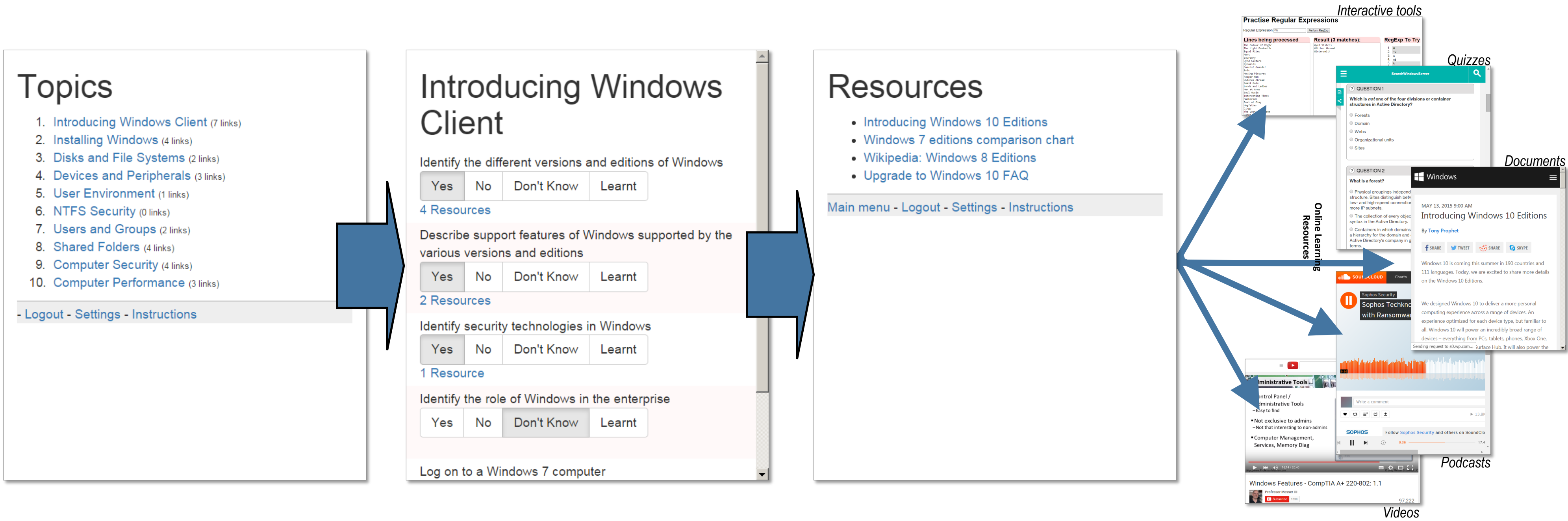


Figure 1: Student view of system

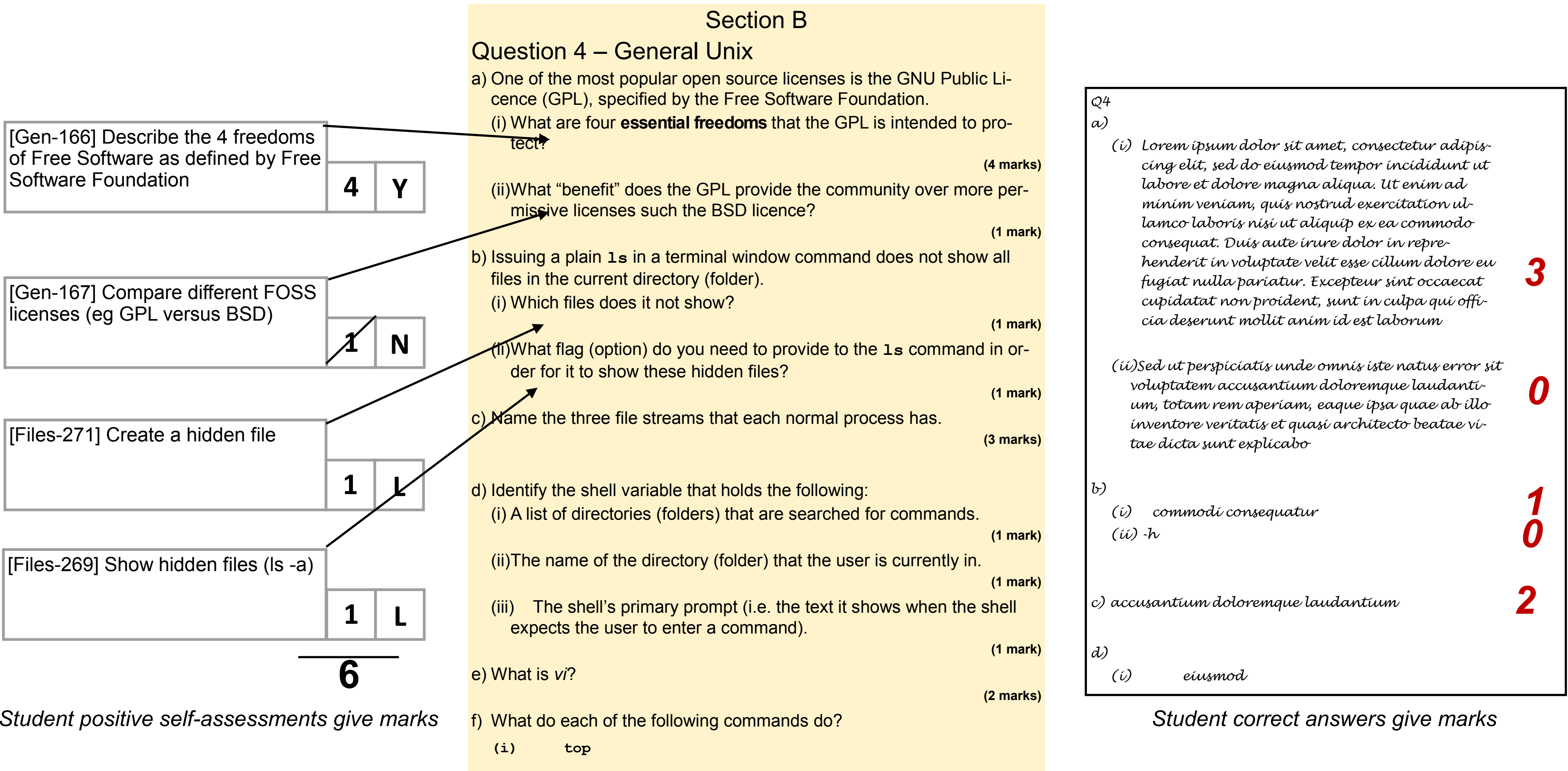


Figure 2: Scoring the exam twice

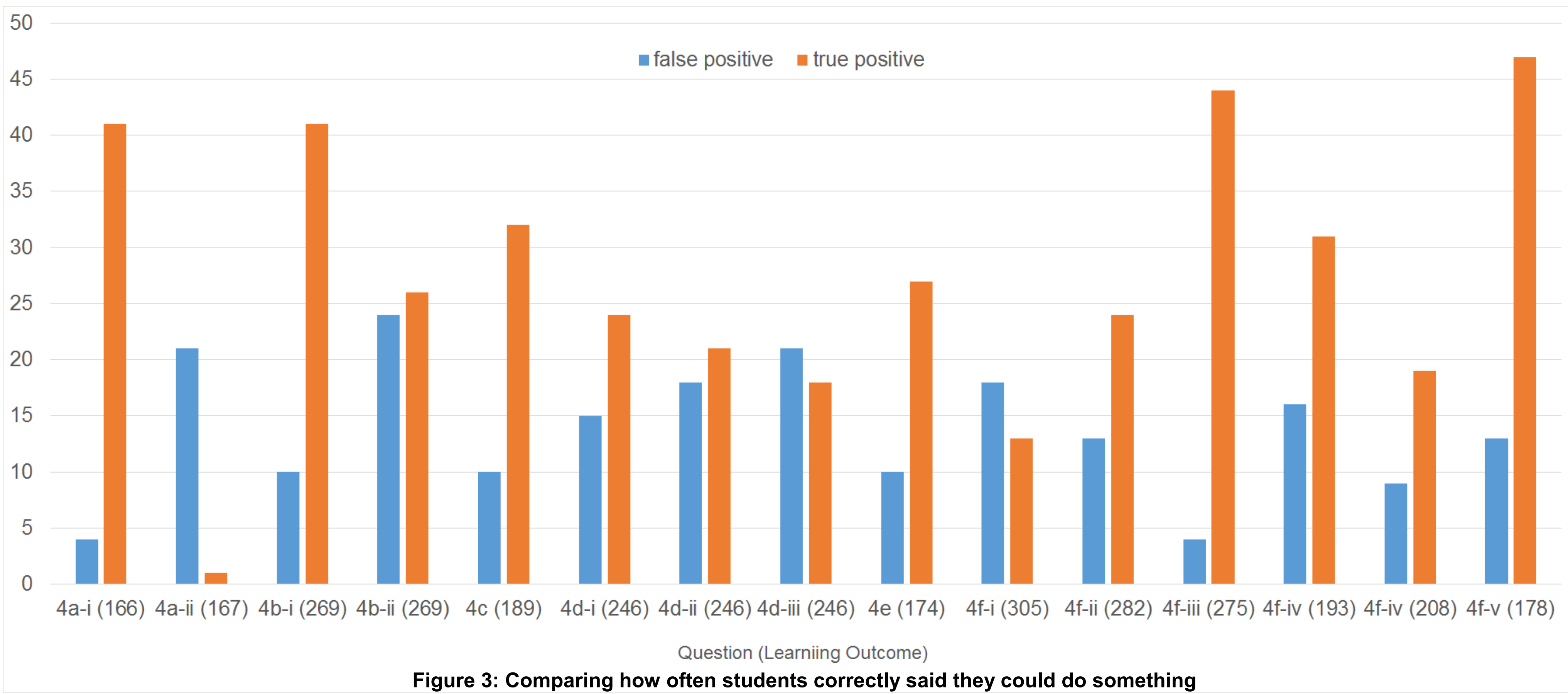


Figure 3: Comparing how often students correctly said they could do something

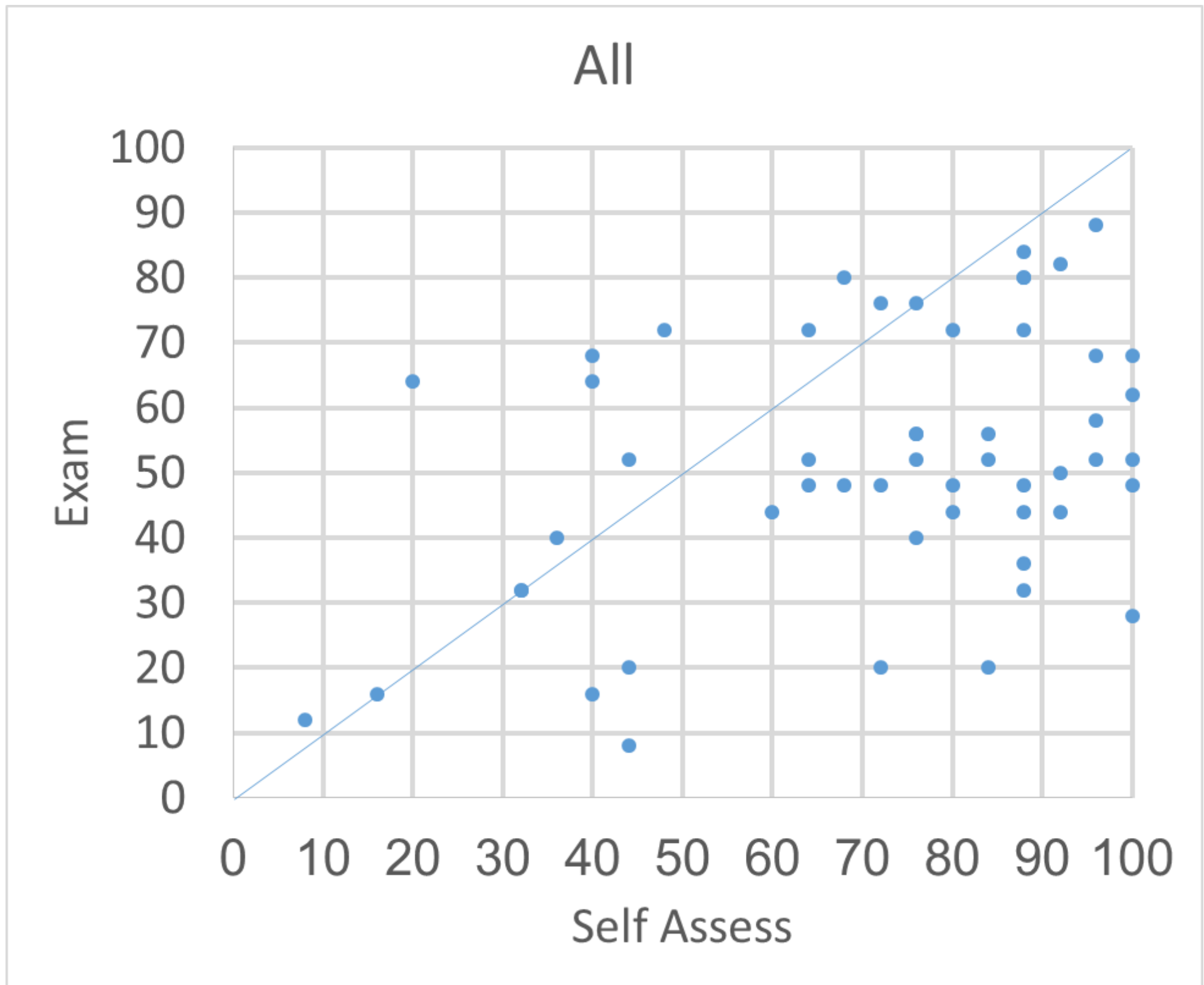


Figure 4: Student self-assessment score against exam mark

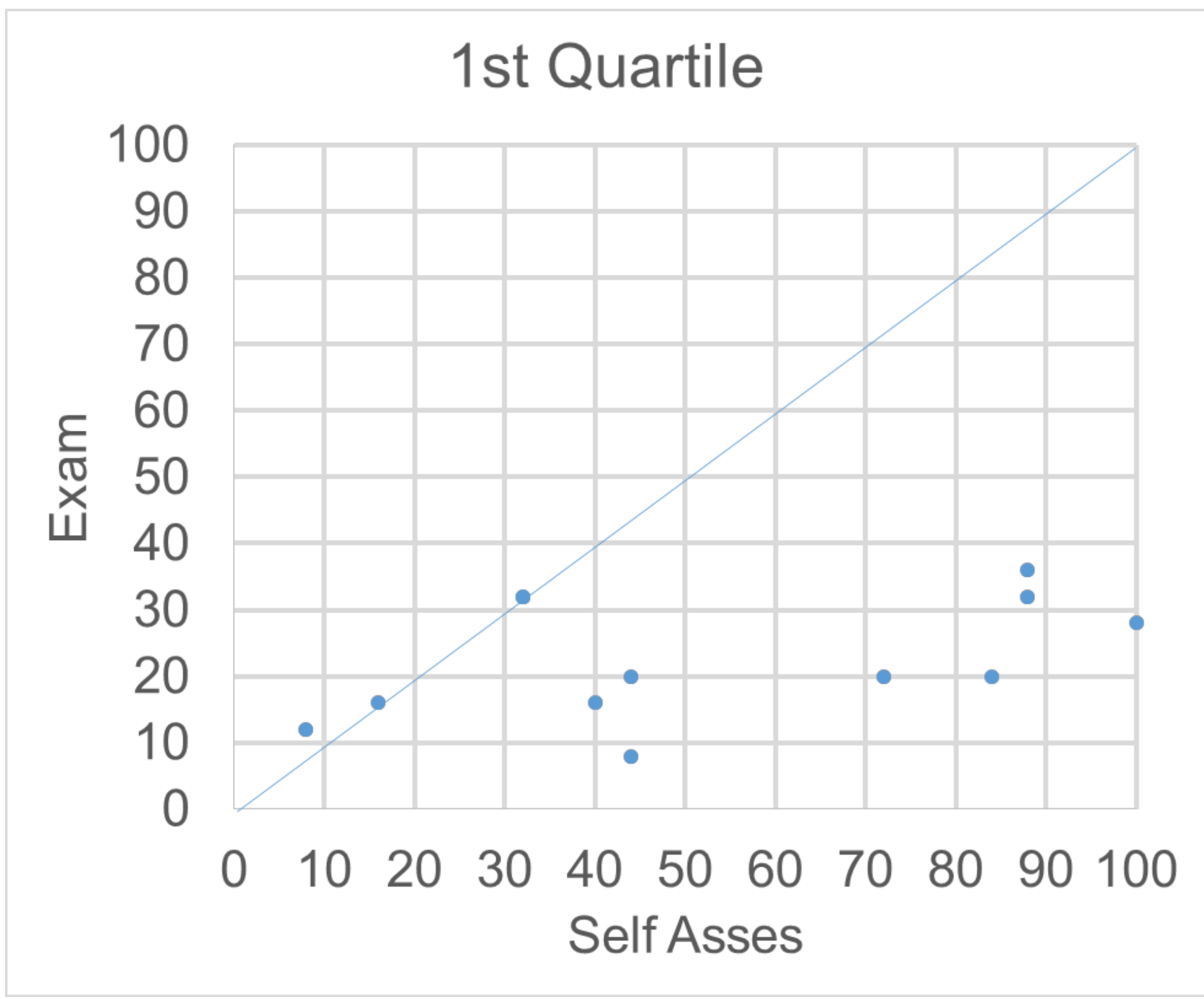


Figure 5: Bottom quarter of class only

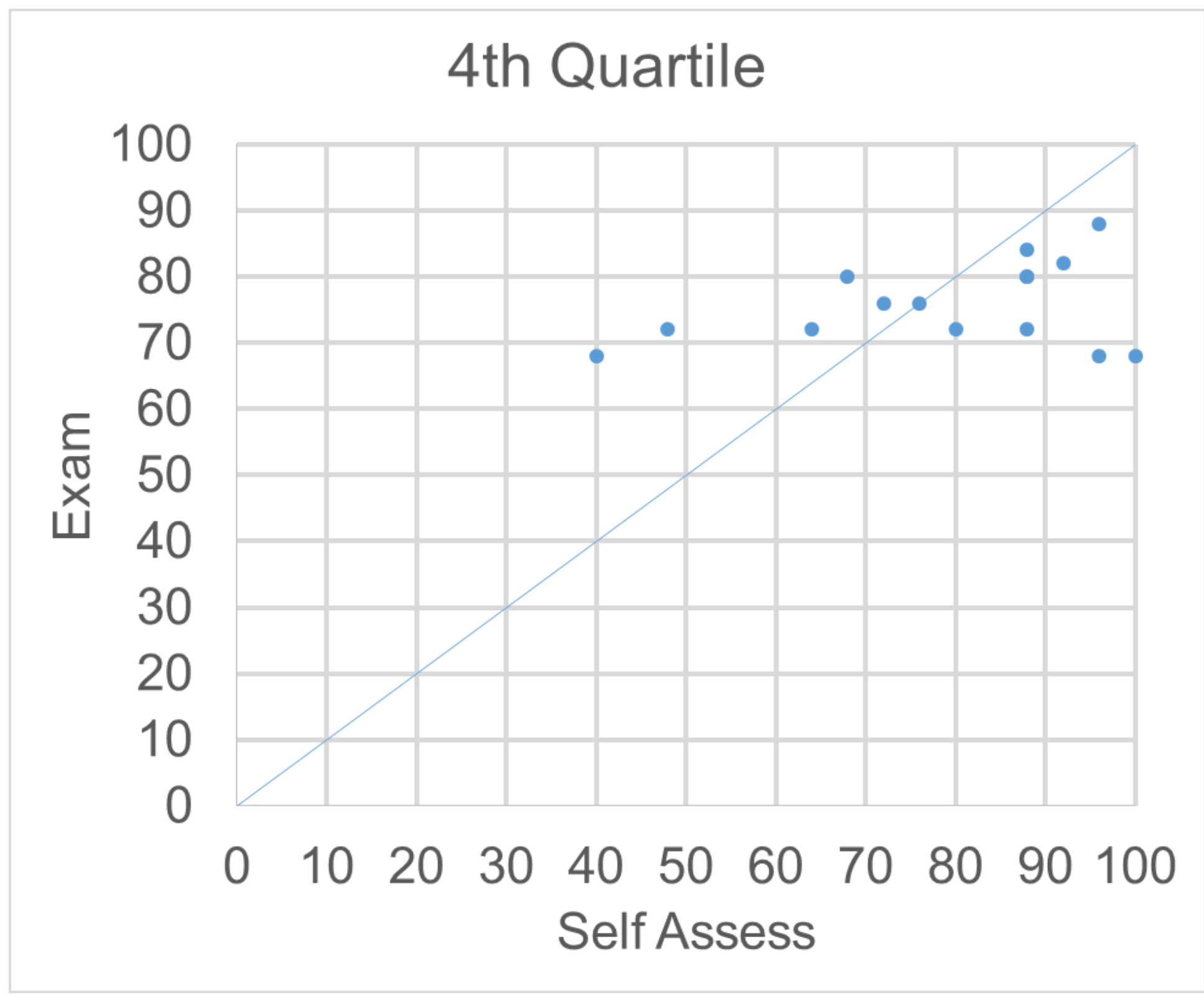


Figure 6: Top quarter of class only